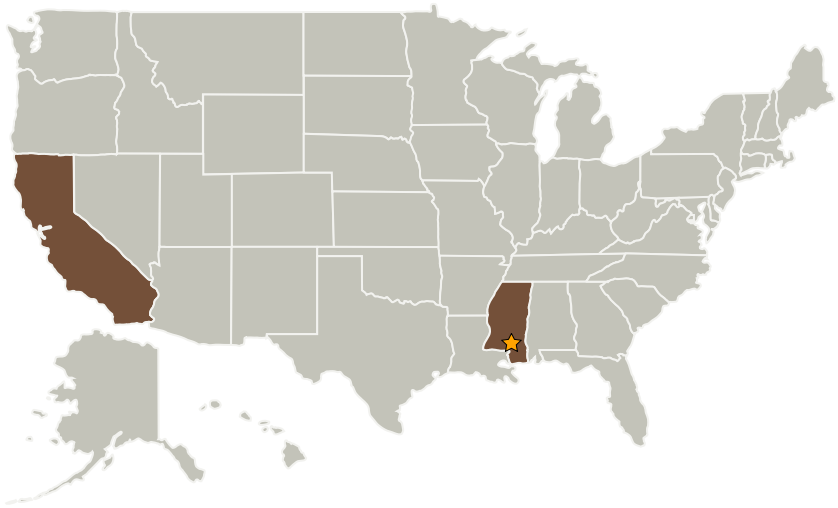
Process-Hardened, Multi-Analyte Sensor for Characterizing Rocket Plum Constituents Under Test Environment, Phase II

Completed Technology Project (2009 - 2011)

Project Introduction

The objective of the Phase II STTR project is to develop a prototype multi-analyte sensor system to detect gaseous analytes present in the test stands during propulsion test activities. Data on the concentrations of propellant-derived species are important to assure proper integration of safety protocols with testing activities to comply with environmental regulations. InnoSense LLC (ISL) has utilized its Chemical Fingerprint(TM) sensor array fabrication technology in Phase I to establish the feasibility of the multi-analyte approach. In particular, we have detected carbon dioxide, isopropanol, carbon monoxide, kerosene and ethylene as potential target analytes in the test stands. We have employed pin printing-based fabrication strategies, which would allow us to customize the sensor suite specific to engine types using different propellants. Concerning the placement of the sensors at the test stands, NASA users will use their discretion in deciding the location based on CFD (Computational Fluid Dynamics) reports. The sensors developed under this project can be used to validate these CFD models. ISL has received endorsement letters on the technology from two NASA prime contractors. ISL has also secured Phase III funding commitment from two commercialization partners. For assuring success of this project, ISL has assembled a technical team with a cumulative 90 person-years of experience in developing commercially viable sensor systems.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Stennis Space Center (SSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Stennis Space Center(SSC)	Lead Organization	NASA Center	Stennis Space Center, Mississippi
Innosense, LLC	Supporting Organization	Industry Minority-Owned Business, Small Disadvantaged Business (SDB), Women-Owned Small Business (WOSB)	Torrance, California

Primary U.S. Work Locations	
California	Mississippi

Project Transitions

September 2009: Project Start

October 2011: Closed out

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX13 Ground, Test, and Surface Systems
  - TX13.2 Test and Qualification
    - TX13.2.7 Test Instruments and Sensors